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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Date: 26-07-22

Lab ID	:	**CP-RW-2023-04-27-40**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.
Address	:	Project Sub Division, BBMP, Bangalore.
Project Name	:	Improvements, Restoration to roads and drains at Dasarahalli, Saraipalya and Rachenahalli surrounding areas in ward no.06
Agency	:	Sri. Puttaswamy Gowda, #36/K, 1st Cross, 3rd Main, VHBCS, nagarbhavi, 9th Block, Bangalore-72
Customer Reference	:	EE(Project)/Ynk Zone/WO/143/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	24-07-22
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of Test	:	24-07-22
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	88	88	1.8	98.2	90-100
9.5	677	765	15.3	84.7	70-88
4.75	885	1650	33.0	67.0	53-71
2.36	581	2231	44.6	55.4	42-58
1.18	487	2718	54.4	45.6	34-48
0.6	493	3211	64.2	35.8	26-38
0.3	536	3747	74.9	25.1	18-28
0.15	462	4209	84.2	15.8	12-20
0.075	352	4561	91.2	8.8	4-10
PAN	439	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

Note:-
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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

End of Report

Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore - 92

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilpropexperts@gmail.com

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2023-04-27-40** **Date: 27-07-22**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.
Address	:	Project Sub Division, BBMP, Bangalore.
Project Name	:	Improvements, Restoration to roads and drains at Dasarahalli, Saraipalya and Rachenahalli surrounding areas in ward no.06
Agency	:	Sri. Puttaswamy Gowda, #36/K, 1st Cross, 3rd Main, VHBCS, nagarbhavi, 9th Block, Bangalore-72
Customer Reference	:	EE(Project)/Ynk Zone/WO/143/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	24-07-22
Type of Mix	:	BC(Bitumenous Concrete)
Date of Test	:	24-07-22

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.5	Minimum Retained Coating 95%
2	98.5	1.5		
3	99.0	1.0		

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore-92

****End of Report****

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2023-04-27-40**	**Date: 27-07-22**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.	
Address	:	Project Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements, Restoration to roads and drains at Dasarahalli, Saraipalya and Rachenahalli surrounding areas in ward no.06	
Agency	:	Sri. Puttaswamy Gowda, #36/K, 1st Cross, 3rd Main, VHBCS, nagarbhavi, 9th Block, Bangalore-72	
Customer Reference	:	EE(Project)/Ynk Zone/WO/143/2020-21	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	24-07-22	
Type of Mix	:	BC (Bituminous Concrete)	
Date of Test	:	24-07-22	

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	9.9	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	10.4		
Strength	Aggregate Impact Value	22.2	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.61	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.3	Maximum 2%	IS:2386 Part III

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

End of Report

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP Bangalore - 92

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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TESTS RESULTS ON STABILITY OF MIX

Date: 27-07-22

Lab ID	:	**CP-RW-2023-04-27-40**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.
Address	:	Project Sub Division, BBMP, Bangalore.
Project Name	:	Improvements, Restoration to roads and drains at Dasarahalli, Saraipalya and Rachenahalli surrounding areas in ward no.06
Agency	:	Sri. Puttaswamy Gowda, #36/K, 1st Cross, 3rd Main, VHBCS, nagarbhavi, 9th Block, Bangalore-72
Customer Reference	:	EE(Project)/Ynk Zone/WO/143/2020-21
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	24-07-22
Type of Mix	:	BC (Bituminous Concrete)
Date of Test	:	24-07-22

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.15	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.42	3.51	2-4
3	Percent air Voids	4.78	4.25	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.36	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.65	72.12	65-75
6	Density, g/cc	2.25	2.26	–

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

End of Report

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP Bangalore - 92

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID	:	**CP-RW-2023-04-27-40**	**Date: 29-07-22**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.	
Address	:	Project Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements, Restoration to roads and drains at Dasarahalli, Saraipalya and Rachenahalli surrounding areas in ward no.06	
Agency	:	Sri. Puttaswamy Gowda, #36/K, 1st Cross, 3rd Main, VHBCS, nagarbhavi, 9th Block, Bangalore-72	
Customer Reference	:	EE(Project)/Ynk Zone/WO/143/2020-21	
Source of Sample	:	Sample supplied by Agency	
Date of Receipt	:	28-07-22	
Type of Mix	:	BC (Bituminous Concrete) - P & T L/O Main Road	
Date of Test	:	28-07-22	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.4	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1}$ X 100	5.52	5.50
7	Average percentage	%	5.5	

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R KARTHIK-RECHAN
Authorized Signatory
Quality Manager

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP Bangalore - 92

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Lab ID : **CP-RW-2023-04-27-40** **Date: 29-07-22**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.4

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	6	6	1.3	98.7	90-100
9.5	75	81	17.1	82.9	70-88
4.75	120	201	42.4	57.6	53-71
2.36	67	268	56.5	43.5	42-58
1.18	32	300	63.2	36.8	34-48
0.6	15	315	66.4	33.6	26-38
0.3	38	353	74.4	25.6	18-28
0.15	29	382	80.5	19.5	12-20
0.075	63	445	93.8	6.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	10	10	2.1	97.9	90-100
9.5	75	85	17.9	82.1	70-88
4.75	120	205	43.2	56.8	53-71
2.36	59	264	55.6	44.4	42-58
1.18	32	296	62.4	37.6	34-48
0.6	15	311	65.5	34.5	26-38
0.3	52	363	76.5	23.5	18-28
0.15	48	411	86.6	13.4	12-20
0.075	35	446	94.0	6.0	4-10

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Authorized Signatory
Quality Manager

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Date: 06-04-23

Lab ID	:	**CP-RW-2023-04-27-40**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.
Address	:	Project Sub Division, BBMP, Bangalore.
Project Name	:	Improvements, Restoration to roads and drains at Dasarahalli, Saraipalya and Rachenahalli surrounding areas in ward no.06
Agency	:	Sri. Puttaswamy Gowda, #36/K, 1st Cross, 3rd Main, VHBCS, nagarbhavi, 9th Block, Bangalore-72
Customer Reference	:	EE(Project)/Ynk Zone/WO/143/2020-21
Source of Sample	:	Sample supplied by Agency
Date of Receipt	:	05-04-23
Type of Mix	:	BC (Bituminous Concrete) - Amar Jyothi layout
Date of Test	:	05-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1}$ X 100	5.50	5.60
7	Average percentage	%	5.6	

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Lab ID : **CP-RW-2023-04-27-40** **Date: 06-04-23**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	10	10	2.1	97.9	90-100
9.5	59	69	14.5	85.5	70-88
4.75	125	194	40.9	59.1	53-71
2.36	65	259	54.6	45.4	42-58
1.18	30	289	60.9	39.1	34-48
0.6	20	309	65.1	34.9	26-38
0.3	56	365	76.9	23.1	18-28
0.15	38	403	84.9	15.1	12-20
0.075	25	428	90.2	9.8	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	8	8	1.7	98.3	90-100
9.5	68	76	16.0	84.0	70-88
4.75	115	191	40.3	59.7	53-71
2.36	75	266	56.1	43.9	42-58
1.18	29	295	62.2	37.8	34-48
0.6	15	310	65.4	34.6	26-38
0.3	48	358	75.5	24.5	18-28
0.15	49	407	85.9	14.1	12-20
0.075	36	443	93.5	6.5	4-10

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